

Bill's Unit Converter

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Time required: 60 minutes

This program will start by asking the user what type of conversion they wish.

We are also going to build a utils file for Python that we can use in our future programs.

- Create a module file named **utils.py** You can add commonly used functions to this as we work with Python.

Enter the following code.

```
1  """
2      Name: utils.py
3      Author:
4      Created:
5      Purpose: A utility module with commonly used functions
6  """
7
8  def get_title(program_title):
9      """
10         Takes in a string argument
11         returns a string with ascii decorations
12     """
13     # Get the length of the statement
14     text_length = len(program_title)
15
16     # Create the title string by concatenation
17
18     title_string = "+--" + "-" * text_length + "--+\n"
19     title_string = title_string + "|  " + program_title + "  |\n"
20     title_string = title_string + "+--" + "-" * text_length + "--+"
21
22     # Return the concatenated title string
23     return title_string
```

From a menu, the user can choose from the following conversions. Each conversion will have a separate function.

- Cm to Inches
- Inches to Cm

- Km to Miles
- Miles to Km
- Create a program named **unit_converter.py** that asks the user to enter a length in centimeters.
- Round the results to 2 decimal places.
- You will want to use a while loop menu as we have done in the past.
- This example code shows how to import the **utils** module and use the **utils.get_title()** function.

```

1  """
2      Name: unit_converter.py
3      Author:
4      Created:
5      Purpose: Convert from one measurement to another
6      Do not allow negative numbers
7  """
8  import utils
9
10 def main():
11     # Print the title of the program
12     print(utils.get_title("Unit Converter"))
13

```

- Use a main function to run the program.
- If the user enters a negative length, the program should tell the user that the entry is invalid.
- Otherwise, the program should convert the length and print out the result.
- This is an example of the centimeters to inches function. There are 2.54 centimeters in an inch.

Example runs:

```

+-----+
| Bill's Unit Converter |
+-----+
Choose a conversion
(1) Centimeters --> Inches
(2) Inches --> Centimeters
(3) Kilometers --> Miles
(4) Miles --> Kilometers
Enter your choice: 1
Enter centimeters: 12
12.0 centimeters is 4.72 inches.
Another conversion?
(1) Yes (2) to quit)

```

```

+-----+
| Bill's Unit Converter |
+-----+
Choose a conversion
(1) Centimeters --> Inches
(2) Inches --> Centimeters
(3) Kilometers --> Miles
(4) Miles --> Kilometers
Enter your choice: 2
Enter inches: 12
12.0 inches is 30.48 centimeters.
Another conversion?
(1) Yes (2) to quit) |

```

```

+-----+
| Bill's Unit Converter |
+-----+
Choose a conversion
(1) Centimeters --> Inches
(2) Inches --> Centimeters
(3) Kilometers --> Miles
(4) Miles --> Kilometers
Enter your choice: 3
Enter kilometers: 45
45.0 kilometers is 27.96 miles.
Another conversion?
(1) Yes (2) to quit)

```

```

+-----+
| Bill's Unit Converter |
+-----+
Choose a conversion
(1) Centimeters --> Inches
(2) Inches --> Centimeters
(3) Kilometers --> Miles
(4) Miles --> Kilometers
Enter your choice: 4
Enter miles: 56
56.0 miles is 90.12 kilometers.
Another conversion?
(1) Yes (2) to quit)

```

Assignment Submission

1. Attach the pseudocode.
2. Attach the program files.
3. Attach screenshots showing the successful operation of the program.
4. Submit in Blackboard.